NON-PUBLIC?: N
ACCESSION #: 8807280366

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Braidwood, Unit 2 PAGE: 1 of 3

DOCKET NUMBER: 05000457

TITLE: Low Steam Generator Level Results in Reactor Trip Due to Inadequate Procedure Guidance
EVENT DATE: 06/21/88 LER #: 88-013-00 REPORT DATE: 07/18/88

OPERATING MODE: 2 POWER LEVEL: 003

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Daniel Stroh, Technical Staff Engineer
TELEPHONE #: 815-458-2801 Ext. 2477

SUPPLEMENTAL REPORT EXPECTED: N

ABSTRACT: At 0107 on June 21, 1988, a reactor trip occurred as the result of a Lo-Lo steam generator level. This was due to insufficient feedwater flow to the 2A Steam Generator. The low flow was the result of an out-of-service associated with feedwater regulating valve. The cause of this event was a procedural deficiency in that the Plant Startup procedure did not address the proper Feedwater Regulating Station lineup prior to increasing reactor power to approximately 3%. Action to prevent recurrence included: 1) Procedure BwGP 100-2 was revised to verify the line up for the manual valves at the feedwater regulating station are correct prior to increasing Rx power from the point of adding heat; 2) A review of the event was conducted with the individuals involved stressing the need for awareness of system configuration status; and 3) A memo was issued to shift and NSO personnel explaining the event, immediate corrective actions, actions to prevent recurrence and the need to use procedure BwAP 300-1 which outlines ways the NSO is to be made aware of non-standard lineups are brought to his attention.

There have been no previous reactor trips as the result of feedwater valve out of services.

(End of Abstract)

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 2; Event Date: June 21, 1988; Event Time: 0107
MODE: 2 - Startup; Rx Power: 3%; RCS (AB) Temperature/Pressure: 557 Degrees F/2235 PSIG

B. DESCRIPTION OF EVENT:

There were no systems or components inoperable at the beginning of the event which contributed to the severity of the event.

At 2238 on June 20, 1988, preparations were being made to change modes on Unit 2 from Mode 3, Hot Standby, to Mode 2, Startup. These preparations included the clearing of an administrative Out-Of-Service (OOS) that isolated the affected penetration for feedwater isolation valve 2FW009A (SJ). The OOS had been established to repair the limit switch of the 2FW009A valve. This penetration had been isolated to comply with the action statement for Technical Specification 3.6.3., as repair of the 2FW009A limit switch could not be completed within the time period required by this technical specification.

After valve strokes were completed, the OOS was signed by the Station Control Room Engineer (SCRE) authorizing the clearance of the above OOS at 2345 on June 20, 1988. However, a high priority was not given to its physical clearance and the re-establishment of the normal system lineup. Both the SCRE and the center desk Nuclear Station Operator (NSO) felt there was sufficient time before this flowpath would be needed to support unit startup.

The administrative mode change from Mode 3 to Mode 2 was completed at 0018 on June 21, 1988, and criticality was achieved at 0033. Reactor power was increased to the point of adding heat. At this time the steam generator (S/G) feedwater regulator bypass valves were placed in service while reactor power was increased to approximately 1%. During the placement of the bypass valves in service, the level in all four S/G's began to decrease.

At this point, the NSO took manual control of the 2A and 2B feedwater regulating bypass valves to return S/G levels to normal. The 2B S/G level returned to normal and its bypass valve was placed in auto.

The 2A S/G level had decreased to 40% and the NSO opened the feedwater regulating bypass valve to 40% demand. Feedwater flow channel 511A then indicated approximately 0.25 million pounds mass per hour (mlb/hr). The FW510A flow channel showed zero flow but did not vary significantly from flow indication on the B, C and D S/G's. As the A S/G level approached 30%, the NSO increased the bypass valve demand to 60% and checked the S/G trend summary on the visual display monitor in the control room. This summary showed a wide range level rate of change of approximately 2.5%, decreasing, and a narrow range level rate of change of approximately 19%, decreasing. The NSO then began to re-establish tempering line flow by fully opening the 2FW034 and 2FW035 valves.

The NSO began inserting control rods to reduce reactor power, and at the same time received the 2A S/G Lo-Lo reactor trip alert. The automatic trip occurred at 0107, before a manual trip could be initiated by the NSO. Auxiliary Feedwater actuated to restore S/G at level.

Operator actions neither increased nor decreased the severity of the event. All systems associated with this event operated as designed.

The appropriate NRC notification via the ENS phone system was made at 0247 on June 21, 1988, pursuant to 10CFR50.72(B)(2)(II).

This event is being reported pursuant to 10CFR50.72(a)(2)(iv) - Any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature, including the Reactor Protection System.

C. CAUSE OF EVENT:

The root cause of this event was a procedural deficiency. BwGP 100-2, Plant Startup, did not address proper Feedwater Regulator Station Lineup prior to increasing Reactor Power to approximately 3%.

D. SAFETY ANALYSIS:

There was no impact on plant or public safety. All systems responded as design. The reactor trip from the 2A S/G low level was an expected response. Feedflow was always available to the 2B, 2C, and 2D S/G's and at sufficient flow rates for 3% reactor power. Although the flow rate to the 2A S/G was insufficient to maintain 3% reactor power, a minimum flow rate through the FW tempering lines was always available.

After the reactor trip, both auxiliary feedwater pumps (AF) (BA) auto

started and supplied feedwater to all four S/G's.

E. CORRECTIVE ACTIONS:

Immediate corrective action was to clear the OOS associated with isolation valve 2FW009A and restore the FW line up to its normal configuration and restore S/G levels to normal.

Action to prevent recurrence included the following:

1) BwGP 100-2 was revised to verify the line up for the manual valves at the FW regulation station are correct prior to increasing Rx power from the point of adding heat;

2) A review of the event was conducted with the individuals involved to determine the nature of the event and to insure its full understanding. One of the items discussed was a need for awareness of system configuration status.

3) A memo was issued to operating shift licensed personnel which explained the event, the cause, the immediate corrective actions, and the actions taken to prevent recurrence. Additionally, the memo stressed the need to use procedure BwAP 300-1. This procedure gives the NSO ways to insure that any system lineups or configurations can be brought to the attention of the operators by the use of orange dots on the control boards as necessary.

F. PREVIOUS OCCURRENCES:

There have been no previous reactor trips as the result of insufficient feedwater flow available to the S/G's.

G. COMPONENT FAILURE DATA:

This event was not the result of component failure, nor did any components fail as a result of this event.

2221m(071988)/11

ATTACHMENT # 1 TO ANO # 8807280366 PAGE: 1 of 1

Commonwealth Edison
Braidwood Nuclear Power Station
Route # 1, Box 84
Braceville, Illinois 60407
Telephone 815/458-2801

BW/88-785
July 20, 1988

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2) (IV) which requires a 30 day written report.

This report is number 88-013-00; Docket No. 50-457.

Very truly yours,
/s/
for R. E. Querio
Station Manager
Braidwood Nuclear Station

REQ/PMB/jab
(7126z)
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